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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/077,207	05/26/1998	SATOSHI INOUE	JAO40840	5738

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EXAMINER
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PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

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28

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/077,207

Applicant(s)

INOUE et al.

Examiner

Prenty

Art Unit

2822



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Dec 9, 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 25-36 and 38-60 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25, 39, 43, 44, 47-57, 59, and 60 is/are allowed.
- 6) ☒ Claim(s) 26-36, 38, 40-42, 45, 46, and 58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some\* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_ 6) ☐ Other:

This non-final Office Action is in response to the amendment filed December 9, 2002.

Claims 27-29, 32, 45 and 46 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 27, as it depends on independent claim 25, is rejected because the specification does not describe a thin film transistor comprising a gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction and further comprising another extension extending from both ends of the gate electrode along the channel length direction.

Claim 27, as it depends on independent claim 26, is rejected because the specification does not describe a thin film transistor comprising a channel region with an extension in a channel width direction and a gate electrode comprising an extension extending from both ends of the gate electrode along the channel length direction.

Claim 28, as it depends on independent claim 25, is rejected because the specification does not describe a thin film transistor comprising a gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction and further comprising another extension extending from at least one end of the gate electrode along the channel length direction.

Claim 28, as it depends on independent claim 26, is rejected because the

specification does not describe a thin film transistor comprising a channel region with an extension in a channel width direction and a gate electrode comprising an extension extending from at least one end of the gate electrode along the channel length direction.

Claim 29, as it depends on independent claim 25, is rejected because the specification does not describe a thin film transistor comprising a gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction, another extension extending from at least one end of the gate electrode along the channel length direction and a gate wiring electrically connected to the at least one end of the gate electrode through a plurality of contact holes.

Claim 29, as it depends on independent claim 26, is rejected because the specification does not describe a thin film transistor comprising a channel region with an extension in a channel width direction, a gate electrode comprising an extension extending from at least one end of the gate electrode along the channel length direction and a gate wiring electrically connected to the at least one end of the gate electrode through a plurality of contact holes.

Claim 32, as it depends on independent claim 25, is further rejected because the specification does not describe a thin film transistor comprising a gate electrode including an extension extending from both sides of the at least one part opposed to the channel region along a channel length direction and a channel region including an extension extending along at least one direction of the channel width.

With respect to claim 45, the specification does not describe a thin film transistor wherein at least one of the source or drain region and the gate electrode comprises an

extension over which a plurality of contact holes are formed, and wherein the channel region includes an extension extending along both directions of the channel width.

With respect to claim 46, the specification does not describe a thin film transistor wherein at least one of the source or drain region and the gate electrode comprises an extension over which a plurality of contact holes are formed, and wherein the gate electrode comprises an extension extending from both ends of the gate electrode along the channel length direction.

Claims 26, 30, 31, 33 and 34 are rejected under 35 U.S.C. §103(a) as obvious over Cherne et al. (United States Statutory Invention Registration H1435, already of record) together with Han et al. (United States Patent 5,920,085, already of record) and Kerber et al. (United States Patent 5,623,155, already of record).

With respect to independent claim 26, Cherne et al. disclose a thin film transistor (see the entire reference, particularly the Figs. 3-4 disclosure), comprising: a silicon film in which a channel region 14 is formed, the channel region including an extension 31 (or 32) in a channel width direction; a gate electrode 21 formed over the channel region and covering up the extension; a gate insulating film 22 provided between the channel region and the gate electrode; and a source-drain region 16 (or 18) connected to said channel region.

There are two differences between Cherne et al's thin film transistor and independent claim 26's thin film transistor.

The first difference between Cherne et al's thin film transistor and claim 26's thin film transistor is their gate electrodes comprise polysilicon and a material "exhibiting higher thermal conductivity than that of the silicon film" (i.e., a metal), respectively.

The second difference between Cherne et al's thin film transistor and claim 26's

thin film transistor is claim 26 recites source, drain and gate wirings electrically connected to the source region, drain region and gate electrode, respectively (Cherne et al. do not explicitly disclose source, drain and gate wirings electrically connected to its source region, drain region and gate electrode, respectively).

With respect to the first difference, Han et al. teach forming a thin film transistor's gate electrode of polysilicon or metal (see column 1, lines 50-60).

It would have been obvious to one skilled in this art to form Cherne et al's thin film transistor's gate electrode 21 of metal, rather than polysilicon, because metal and polysilicon are used interchangeably for a thin film transistor's gate electrode, as taught by Han et al.

With respect to the second difference, Kerber et al. illustrate that a thin film transistor's source region, drain region and gate electrode are conventionally provided with wirings (see column 3, lines 22-43).

It would have also been obvious to one skilled in this art to provide Cherne et al's thin film transistor with source, drain and gate wiring layers electrically connected to its source region, drain region and gate electrode, respectively, as is conventionally done, as illustrated by Kerber et al.

Claim 26 is thus rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. together with Han et al. and Kerber et al.

With respect to dependent claim 30, Kerber et al. illustrate that a gate wiring is conventionally electrically connected to one end of the gate electrode through at least one contact hole (see column 3, lines 22-43).

Claim 30 is thus rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. together with Han et al. and Kerber et al.

With respect to dependent claim 31, Kerber et al. illustrate that a source/drain wiring is conventionally electrically connected to a source/drain region through at least one contact hole (see column 3, lines 22-43).

Claim 31 is thus rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. together with Han et al. and Kerber et al.

With respect to dependent claims 33 and 34, Cherne et al.'s discloses extends to CMOS transistors (see the title of the invention, for example).

Claims 33 and 34 are thus rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. together with Han et al. and Kerber et al.

Claims 35, 36, 38, 40-42 and 58 are rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. (United States Statutory Invention Registration H1435, already of record) together with Han et al. (United States Patent 5,920,085, already of record), Kerber et al. (United States Patent 5,623,155, already of record) and Koyama et al. (United States Patent 5,616,935, already of record).

Specifically, the difference between the obvious Cherne et al./Han et al./Kerber et al. (C)MOS thin film transistors (explained above) and the set of rejected claims is the latter's (C)MOS thin film transistors are used in various devices.

Koyama et al. teach that "Complementary circuits using TFTs are conventionally used to drive an active matrix type liquid crystal display device, an image sensor, and the like" (column 1, lines 15-17).

It would have been further obvious to one skilled in this art to use the obvious Cherne et al./Han et al./Kerber et al. complementary thin film transistors "to drive an active matrix type liquid crystal display device, an image sensor, and the like," as taught by Koyama et al.

Claims 35, 36, 38, 40-42 and 58 are thus rejected under 35 U.S.C. §103(a) as being unpatentable over Cherne et al. together with Han et al., Kerber et al. and Koyama et al.

Claims 25, 39, 43, 44, 47-57, 59 and 60 are apparently allowable over the prior art of record.

The applicant's argument with respect to the maintained rejection of claim 27, as it depends on independent claim 25, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least two reasons.

First, although the applicant asserts that different features of dependent claim 27, as it depends on independent claim 25, are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 27, as it depends on claim 25.

Furthermore, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of claim 27, as it depends from independent claim 26, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least two reasons.

First, although the applicant asserts that different features of dependent claim 27, as it depends on independent claim 26, are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 27,



as it depends on claim 26.

Furthermore, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of claim 28, as it depends from independent claim 25, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least two reasons.

First, although the applicant asserts that different features of dependent claim 28, as it depends on independent claim 25, are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 28, as it depends on claim 25.

Furthermore, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of claim 28, as it depends from independent claim 26, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least two reasons.

First, although the applicant asserts that different features of dependent claim

28, as it depends on independent claim 26, are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 28, as it depends on claim 26.

Furthermore, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejections of claim 29 under 35 U.S.C. §112, first paragraph, is not persuasive, for at least three reasons.

First, the applicant fails to specifically address the two separate rejections of claim 29 (there are two separate rejections because claim 29 depends on claim 25 or claim 26).

Furthermore, although the applicant apparently asserts that different features of claim 29, regardless of whether it depends on claim 25 or claim 26, are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 29, whether it depends on claim 25 or on claim 26.

Finally, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of claim 32, as it depends on independent claim 25, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least two reasons.

First, the applicant fails to fully address this rejection. Specifically, although the applicant asserts that Fig. 3 shows one of claim 32's features, the applicant does not, and can not, assert that Fig. 3 discloses all of claim 32's features.

Furthermore, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of dependent claim 45, which depends on independent claim 44, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least three reasons.

First, although the applicant notes that independent claim 44 has been allowed, such does not speak to the rejection of dependent claim 45 under 35 U.S.C. §112, first paragraph.

Furthermore, although the applicant apparently asserts that different features of claim 45 are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 45.

Finally, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict

with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's argument with respect to the maintained rejection of dependent claim 46, which depends on independent claim 44, under 35 U.S.C. §112, first paragraph, is not persuasive, for at least three reasons.

First, although the applicant notes that independent claim 44 has been allowed, such does not speak to the rejection of dependent claim 46 under 35 U.S.C. §112, first paragraph.

Furthermore, although the applicant apparently asserts that different features of claim 46 are shown in different embodiments, the applicant fails to point to a single embodiment commensurate in scope with claim 46.

Finally, to the extent the applicant is suggesting that various embodiments can be arbitrarily combined, such is not the case. For example, the Fig. 1 embodiment can not be combined with the Fig. 7 embodiment, because those embodiments conflict with each other. Specifically, the Fig. 7 embodiment's gate electrode 803 can not be extended, as per the Fig. 1 embodiment, because such would conflict with the Fig. 7 embodiment's wiring extensions 881 and 882.

The applicant's arguments with respect to the prior rejections under 35 U.S.C. §102 and 35 U.S.C. §103 are moot in view of the new grounds of rejection.

Registered practitioners can telephone examiner Prenty at (703) 308-4939. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the application's Serial Number. Technology Center 2800's general telephone number is (703) 308-0956.

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